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Types of back pain: acute pain, chronic pain, and neuropathic pain

Understanding how **pain** is defined is important in order to learn how to better control it. For the purposes of research and medical practice, **pain** can be separated into three categories:

- Acute **pain**
- Chronic **pain**
- **Neuropathic pain**

Acute pain
One common type of **pain** is acute **pain**, currently defined as **pain** lasting less than 3 to 6 months, or **pain** that is directly related to tissue damage. This is the kind of **pain** that is experienced from a paper cut or needle prick. Other examples of acute **pain** include:

- Touching a hot stove or iron. This **pain** will cause a fast, immediate, intense **pain** with an almost simultaneous withdrawal of the body part that is being burned. More of an aching **pain** might be experience a few seconds after the initial **pain** and withdrawal.
- Smashing one's finger with a hammer. This **pain** is similar to that of touching a hot stove in that there is immediate **pain**, withdrawal and then "slower" aching **pain**.
- Labor pains. The **pain** during childbirth is acute and the cause is certainly identifiable.

The longer **pain** goes on the more susceptible it is to other influences and developing into a chronic **pain** problem. These influences include such things as the ongoing **pain** signal input to the nervous system even without tissue damage, lack of exercise (physical deconditioning), a person's thoughts about the **pain**, as well as emotional states such as depression and anxiety.

Chronic pain
There are at least two different types of chronic **pain** problems - chronic **pain** due to an identifiable **pain** generator (e.g. an injury), and chronic **pain** with no identifiable **pain** generator (e.g. the injury has healed).

Chronic pain due to an identifiable pain generator
This type of chronic **pain** is due to a clearly identifiable cause. Certain structural spine conditions (for example, degenerative disc disease, spinal stenosis and spondylolisthesis) can cause ongoing **pain** until successfully treated. These conditions are due to a diagnosable anatomical problem.

If the **pain** caused by these types of conditions has not subsided after a few weeks or months of conservative treatments, then spine surgery may usually be considered as a treatment option.

Chronic pain with no identifiable pain generator
This type of **pain** continues beyond the point of tissue healing and there is no clearly identifiable **pain** generator that explains the **pain**. It is often termed "chronic benign **pain**".

It appears that **pain** can set up a pathway in the nervous system and, in some cases, this becomes the problem in and of itself. In chronic **pain** the nervous system may be sending a **pain** signal even though there is no ongoing tissue damage. The nervous system itself misfires and creates the **pain**. In such cases, the **pain** is the disease rather than a symptom of an injury.

The term "chronic **pain**" is generally used to describe **pain** that lasts more than three to six months, or beyond the point of tissue healing. Chronic **pain** is usually less directly related to identifiable tissue damage and structural problems. Examples of chronic **pain** are: chronic back **pain** without a clearly determined cause, failed back surgery syndrome (continued **pain** after the surgery has completed healed), and **fibromyalgia**.

Chronic **pain** is influenced by many factors, such as ongoing **pain** signal input to the nervous system even without tissue damage, physical deconditioning due to lack of exercise, a person's thoughts about the **pain**, as well as emotional states such as depression and anxiety. Chronic **pain** is much less well understood than acute **pain**.

Neuropathic pain
Neuropathic pain has only been investigated relatively recently. In most types of **neuropathic pain**, all signs of the original injury are usually gone and the **pain** that one feels is unrelated to an observable injury or condition. With this type of **pain**, certain nerves continue to send **pain** messages to the brain even though there is no ongoing tissue damage.

Neuropathic pain (also called nerve **pain** or neuropathy) is very different from **pain** caused by an underlying injury. While it is not completely understood, it is thought that injury to the sensory or motor nerves in the peripheral nervous system can potentially cause neuropathy. **Neuropathic pain** could be placed in the chronic **pain** category but it has a different feel then chronic **pain** of a musculoskeletal nature.

Neuropathic pain feels different than musculoskeletal **pain** and is often described with the following terms: severe, sharp, lancinating, lightning-like, stabbing, burning, cold, and/or ongoing numbness, tingling or weakness. It may be felt traveling along the nerve path from the spine down to the arms/hands or legs/feet. It's important to understand **neuropathic pain** because it has very different treatment options from other types of back **pain**. For example, opioids (such as morphine) and NSAID's (such as ibuprofen, COX-2 inhibitors) are usually not effective in relieving **neuropathic pain**. Treatments for **neuropathic pain** include certain medications, nerve "block" injections, and a variety of interventions generally used for chronic **pain**.

Note: Performing your original search, ***fibromyalgia neuropathic pain***, in PubMed will retrieve *52* citations.

1: J Rheumatol Suppl. 2005 Aug;75:41-5.

The relationship of fibromyalgia to neuropathic pain syndromes.

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The appropriateness and utility of considering fibromyalgia syndrome (FM) and other syndromes without anatomically localized pathology of the nervous system as neuropathic pain syndromes is uncertain. In this afterword, a synthesis of the information presented in these proceedings and opinion as to how FM relates to classical neuropathic pain syndromes is provided.

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Medscape Medical News

Fibromyalgia seen as a neuropathic pain syndrome

Janis Kelly

April 12, 2006
Mexico City, Mexico - Fibromyalgia (FM) is best described as a "sympathetically maintained neuropathic pain syndrome," says **Dr Manual Martinez-Lavin** (National Institute of Cardiology, Mexico City, Mexico) [1]. The future of FM research is likely to be influenced by methods already developed by pain researchers, he believes, adding that one attractive therapeutic possibility is the use of sodium channel blockers.

Martinez-Lavin airs his views in a letter in the April 2006 issue of the *Journal of Rheumatology,* prompted by a recent special supplement to the journal [2] that explored the possibility that fibromyalgia pain is at least in part due to an underlying nervous-system dysfunction.

"I have little doubt that fibromyalgia pain is due to an intrinsic nerve-system dysfunction. Sympathetic hyperactivity (with its concurrent hyporeactivity to stress) explains all of the features of fibromyalgia," Martinez-Lavin told **rheuma*wire***, when asked to expand on his views. "It is interesting to notice that nonpharmacological therapies that have been proven useful in fibromyalgia (biofeedback, cognitive-behavioral approaches, graded aerobic exercises) also improve resting autonomic tone."

Pain maintained by sympathetic nervous system

Martinez-Lavin notes that neuropathic pain is stimuli-independent and is accompanied by allodynia and paresthesia, which are also common features of fibromyalgia. He also points out that the most important characteristic of neuropathic pain is not the nerve lesion, but the resulting nerve dysfunction.

Although fibromyalgia typically has no underlying structural damage and no signs of inflammation, there is an apparent dysfunction in central-nervous-system sensitization, including abnormal temporal summation of pain and abnormal spinal-cord reflexes. "Central sensitization is an expression of neuroplasticity and is the major cause of hypersensitivity to pain after injury," he

writes.

The dysfunction in FM appears to be sympathetically maintained, as controlled studies have shown that FM patients "display signs of relentless sympathetic hyperactivity," and FM pain often responds to sympathetic blockade but can be rekindled by norepinephrine injections. Animal studies of sympathetically maintained pain have shown sympathetic sprouting at the dorsal-root ganglia, with formation of basketlike structures around large-diameter, axotomized sensory neurons. Animal studies have also shown abnormal posttraumatic connections in the dorsal horn of the spinal cord.

"We have no direct evidence yet that these changes also occur in humans with fibromyalgia," Martinez-Lavin comments, but he adds: "As far as I know, nobody has looked specifically for these structural abnormalities."

However, there are other indirect clues that suggest that this type of neuroplasticity may occur in fibromyalgia. In rats, intraventricular infusion of nerve-growth factor induces sympathetic sprouting in the dorsal-root ganglia. Patients with fibromyalgia have increased cerebrospinal fluid levels of nerve-growth factor, and in a "pilot study in patients with Alzheimer's disease, an intraventricular infusion of nerve-growth factor led to the patients developing diffuse back pain, and so the study was stopped."

This suggests that "we have to look at the 'state of the art' in neuropathic pain research and treatment and translate it to fibromyalgia," Martinez-Lavin urges. "There is much to be learned of the central sensitization and neuroplasticity that undeniably occur in neuropathic pain and may apply to fibromyalgia. Likewise, we must take advantage of the ongoing pharmacological research in neuropathic pain and consider the possibility that some of those discoveries may be also useful in fibromyalgia."

Sources

1. Martinez-Lavin M. Fibromyalgia is a neuropathic pain syndrome. *J Rheumatol* 2006; 33:827-829. MEDLINE
2. Dworkin RH, Fields HL. Fibromyalgia from the perspective of neuropathic pain. *J Rheumatol* 2005; 32 Suppl 75:1-5. MEDLINE

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Janis Kelly is a freelance writer for Medscape. She has been a medical journalist since 1976, with extensive work in rheumatology, immunology, neurology, sports medicine, AIDS and infectious diseases, oncology, and respiratory medicine.

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Is fibromyalgia a neuropathic pain syndrome?

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Résumé / Abstract
The fibromyalgia syndrome (FM) seems an unlikely candidate for classification as a neuropathic pain. The disorder is diagnosed based on a compatible history and the presence of multiple areas of musculoskeletal tenderness. A consistent pathology in either the peripheral or central nervous system (CNS) has not been demonstrated in patients with FM, and they are not at higher risk for diseases of the CNS such as multiple sclerosis or of the peripheral nervous system such as peripheral neuropathy. A large proportion of FM sufferers have accompanying symptoms and signs of uncertain etiology, such as chronic fatigue, sleep disturbance, and bowel/bladder irritability. With the exception of migraine headaches and possibly irritable bowel syndrome, the accompanying disorders are clearly not neurological in origin. The impetus to classify the FM as a neuropathic pain comes from multiple lines of research suggesting widespread pain and tenderness are associated with chronic sensitization of the CNS. An examination of how the term neuropathic pain is defined reveals a conceptual split into 2 partially overlapping groups of disorders: those with demonstrable pathology in the nervous system and those characterized primarily by enduring dysfunction in the nervous system. Requiring demonstrable pathology in the nervous system in the definition of neuropathic pain is the traditional approach. The expansion of the definition to require only enduring nervous system dysfunction is less palatable because it opens the classification to many disorders of uncertain etiology, including complex regional pain syndrome. As it is uncertain which of the many different chronic pain syndromes include an enduring component of central sensitization, restricting the term neuropathic pain to those disorders with a primary etiology clearly related to the peripheral or CNS is prudent and consistent with clinical practice.

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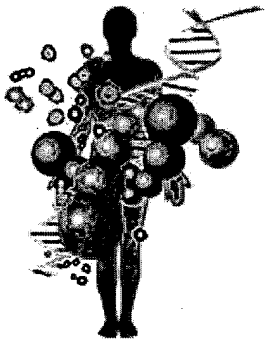

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Is **Fibromyalgia** a **Neuropathic Pain** Syndrome?

MICHAEL C. ROWBOTHAM

ABSTRACT.

The **fibromyalgia** syndrome (FM) seems an unlikely candidate for classification as a **neuropathic pain**. The disorder is diagnosed based on a compatible history and the presence of multiple areas of musculoskeletal tenderness. A consistent pathology in either the peripheral or central nervous system (CNS) has not been demonstrated in patients with FM, and they are not at higher risk for diseases of the CNS such as multiple sclerosis or of the peripheral nervous system such as peripheral neuropathy. A large proportion of FM sufferers have accompanying symptoms and signs of uncertain etiology, such as chronic fatigue, sleep disturbance, and bowel/bladder irritability. With the exception of migraine headaches and possibly irritable bowel syndrome, the accompanying disorders are clearly not neurological in origin. The impetus to classify the FM as a **neuropathic pain** comes from multiple lines of research suggesting widespread **pain** and tenderness are associated with chronic sensitization of the CNS. An examination of how the term **neuropathic pain** is defined reveals a conceptual split into 2 partially overlapping groups of disorders: those with demonstrable pathology in the nervous system and those characterized primarily by enduring dysfunction in the nervous system. Requiring demonstrable pathology in the nervous system in the definition of **neuropathic pain** is the traditional approach. The expansion of the definition to require only enduring nervous system dysfunction is less palatable because it opens the classification to

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many disorders of uncertain etiology, including complex regional **pain** syndrome. As it is uncertain which of the many different chronic **pain** syndromes include an enduring component of central sensitization, restricting the term "**neuropathic pain**" to those disorders with a primary etiology clearly related to the peripheral or CNS is prudent and consistent with clinical practice. (J Rheumatol 2005;32 Suppl 75:38-40)

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Note: Performing your original search, ***fibromyalgia as neuropathic pain***, in PubMed will retrieve *52* citations.

1: CNS Spectr. 2005 Apr;10(4):285-97.

Current trends in neuropathic pain treatments with special reference to fibromyalgia.

Offenbaecher M, **Ackenheil M**.

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Neuropathic pain and fibromyalgia are prevalent diseases which have major consequences on healthcare resources and the individual. From the clinical point of view neuropathic pains represent a heterogeneous group of aetiologically different diseases ranging from cancer to diabetes. Patients with fibromyalgia also display clinical features common in neuropathic pain suggesting that there might be some overlap. The mechanisms responsible for symptoms and signs in both diseases are still unknown. Recently, there have been numerous reports of various pharmacological treatments of neuropathic pain and fibromyalgia with often disappointing results. Most of the studies were of short duration, had high attrition rates, and displayed other methodological problems. Some compounds had high rates of adverse effects which makes it often difficult for the patients to tolerate the treatment, especially in the long-term. At present, the best options for medication treatment are tricyclic antidepressants in lower dosage than usual in psychiatric disorders and a wide range of anticonvulsants. Opioids are sometimes recommended but have been found to have minor efficacy. Recently, there have been more controlled trials, which are reported here if they had been published between 2002 and 2004. Various compounds have been tested in different studies. Treatment of fibromyalgia, which has many features in common with depressive symptoms, became the focus of interest. New promising studies with dual serotonin-norepinephrine reuptake inhibitors (duloxetine and milnacipram) and a newer antiepileptic drug (pregabalin) are in progress. Future research will have to apply new approaches (e.g., using a mechanism-based classification of

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Treatment options in postherpetic neuralgia. [Acta Neurol Scand Suppl. 1999]

EFNS guidelines on pharmacological treatment of neuropathic pain. [Eur J Neurol. 2006]

Pharmacologic treatment of neuropathic pain. [Acta Neurol Belg. 2001]

Antidepressants in the treatment of neuropathic pain. [Basic Clin Pharmacol Toxicol. 2005]

Antidepressants for neuropathic pain. [Cochrane Database Syst Rev. 2005]

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neuropathic pain and carrying out studies in populations with the same symptom but not necessarily the same disease) in order to find effective treatments for these common and often debilitating diseases.

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All about neuropathy and chronic back pain

Understanding chronic back pain and neuropathy
Chronic **pain** that results from damage to or pathological changes of the **peripheral** or central nervous syste called neuropathy. **Peripheral neuropathic pain** has also been referred to as painful neuropathy, nerve **pai** sensory **peripheral** neuropathy, or **peripheral** neuritis. Patients with neuropathy often describe it as unlike **pain** that they have felt before.

It is important to note that with neuropathy the chronic **pain** is not a symptom of injury, but rather the **pain** itself the disease process. Neuropathy is not associated with the healing process. Rather than communicating there is an injury somewhere, the nerves themselves malfunction and become the cause of **pain.**

Characteristics of neuropathy and chronic back pain
Back **pain** or other **pain** that is caused by neuropathy is typically described as:

- Severe, sharp, electric shock-like, shooting, lightening-like, or lancinating
- Deep, burning or cold
- Persistent numbness, tingling, or weakness
- Traveling along the nerve path into the arms, hands, or legs or feet

Further, neuropathy may be characterized by **pain** resulting from light touch or other stimulus that does not typically cause **pain**, as well as special hypersensitivity to a normally painful stimulus (e.g. a pinprick).

Neuropathy can result from any type of **pain** that compresses or impinges on a nerve. Examples of **neuropa pain** originating from the back or spine can include:

- Chronic **pain** that radiates down the leg (radiculopathy, or sciatica)

- Chronic **pain** that radiates down the arm (radiculopathy)
- **Pain** after back surgery that starts gradually and persists, which is commonly referred to as failed bac surgery syndrome.

Other common causes of neuropathy include diabetes, phantom limb **pain**, or regional **pain** syndrome (RPS)

As with all forms of chronic back **pain**, if neuropathy is not appropriately treated, there can be a number of associated problems that lead to a downward cycle for the patient, including depression, sleeplessness, feelin fear and anxiety, limited social interaction and inability to perform normal daily activities or work.

Diabetes, Obesity and Metabolism
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Abstract

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